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Service Delivery and Patient Outcomes in Ryan White HIV/AIDS Program–Funded and –Nonfunded Health Care Facilities in the United States

John Weiser, MD, MPH, **Linda Beer, PhD**, **Emma L. Frazier, PhD**, **Roshni Patel, MPH**, **Antigone Dempsey, MEd**, **Heather Hauck, MSW**, and **Jacek Skarbinski, MD**

Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia (Weiser, Beer, Frazier, Patel); Health Information and Technology Systems, ICF International, Atlanta, Georgia (Patel); HIV/AIDS Bureau, Health Resources and Services Administration, Rockville, Maryland (Dempsey, Hauck); Division of Global HIV/AIDS and Tuberculosis, Centers for Disease Control and Prevention, Atlanta, Georgia (Skarbinski)

Abstract

IMPORTANCE—Outpatient human immunodeficiency virus (HIV) health care facilities receive funding from the Ryan White HIV/AIDS Program (RWHAP) to provide medical care and essential support services that help patients remain in care and adhere to treatment. Increased access to Medicaid and private insurance for HIV-infected persons may provide coverage for medical care but not all needed support services and may not supplant the need for RWHAP funding.

OBJECTIVE—To examine differences between RWHAP-funded and non–RWHAP-funded facilities and in patient outcomes between the 2 systems.

DESIGN, SETTING, AND PARTICIPANTS—The study was conducted from June 1, 2009, to May 31, 2012, using data from the 2009 and 2011 cycles of the Medical Monitoring Project, a national probability sample of 8038 HIV-infected adults receiving medical care at 989 outpatient health care facilities providing HIV medical care.

Corresponding Author: John Weiser, MD, MPH, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, 1600 Clifton Rd NE, Mail Stop E46, Atlanta, GA 30329 (jweiser@cdc.gov).

Author Contributions: Dr Weiser had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Study concept and design: Weiser, Beer, Skarbinski.
Acquisition, analysis, or interpretation of data: All authors.
Drafting of the manuscript: Weiser.
Critical revision of the manuscript for important intellectual content: All authors.
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MAIN OUTCOMES AND MEASURES—Data were used to compare patient characteristics, service needs, and access to services at RWHAP-funded vs non–RWHAP-funded facilities. Differences in prescribed antiretroviral treatment and viral suppression were assessed. Data analysis was performed between February 2012 and June 2015.

RESULTS—Overall, 34.4% of facilities received RWHAP funding and 72.8% of patients received care at RWHAP-funded facilities. With results reported as percentage (95% CI), patients attending RWHAP-funded facilities were more likely to be aged 18 to 29 years (8.5%[7.4%–9.5%] vs 5.0%[3.9%–6.2%]), female (29.2%[27.2%–31.2%] vs 20.1%[17.0%–23.1%]), black (47.5% [41.5%–53.5%] vs 25.8% [20.6%–31.0%]) or Hispanic (22.5%[16.4%–28.6%] vs 12.9%[10.6%–15.2%]), have less than a high school education (26.1% [24.0%–28.3%] vs 10.9%[8.7%–13.1%]), income at or below the poverty level (53.6%[50.3%–56.9%] vs 23.9%[19.7%–28.0%]), and lack health care coverage (25.0%[21.9%–28.1%] vs 6.1% [4.1%–8.0%]). The RWHAP-funded facilities were more likely to provide case management (76.1% [69.9%–82.2%] vs 15.4%[10.4%–20.4%]) as well as mental health (64.0%[57.0%–71.0%] vs 18.0%[14.0%–21.9%]), substance abuse (33.6%[27.0%–40.2%] vs 12.0%[8.0%–16.0%]), and other support services; patients attending RWHAP-funded facilities were more likely to receive these services. After adjusting for patient characteristics, the percentage prescribed ART antiretroviral therapy, reported as adjusted prevalence ratio (95% CI), was similar between RWHAP-funded and non–RWHAP-funded facilities (1.01 [0.99–1.03]), but among poor patients, those attending RWHAP-funded facilities were more likely to be virally suppressed (1.09 [1.02–1.16]).

CONCLUSIONS AND RELEVANCE—A total of 72.8% of HIV-positive patients received care at RWHAP-funded facilities. Many had multiple social determinants of poor health and used services at RWHAP-funded facilities associated with improved outcomes. Without facilities supported by the RWHAP, these patients may have had reduced access to services elsewhere. Poor patients were more likely to achieve viral suppression if they received care at a RWHAP-funded facility.

The Ryan White Human Immunodeficiency Virus (HIV)/AIDS Program (RWHAP) was established in 1990 to provide funds to states, eligible metropolitan areas, and clinics to increase access to high-quality HIV care and treatment for low-income, uninsured, and underinsured individuals and families affected by HIV infection.[1] An estimated 873 000 persons were living with a diagnosis of HIV infection in the United States at the end of 2010.[2] The RWHAP reaches more than 500 000 people annually[3] and accounts for 16% of federal spending on HIV care and treatment.[4] Administered by the Health Resources and Services Administration, the RWHAP provides funding as a payer of last resort for core medical services, including outpatient medical care, medications for the treatment of HIV disease, medical case management, and antiretroviral therapy (ART) adherence support. In addition, HIV care facilities receive RWHAP funding to provide comprehensive support services, including nonmedical case management; assistance with food, housing, and transportation; mental health and substance abuse services; and HIV transmission risk reduction counseling.

Because many HIV-infected persons lack resources that support health (eg, have incomes below the federal poverty level, less than a high school education, and no health care coverage),[5] provision of support services may improve their health outcomes. Case

management; assistance with food, housing, and transportation; and mental health and substance abuse services have been associated with increased retention in care[6,7]; adherence counseling has been associated with viral suppression[8]; and recipients of behavioral risk reduction interventions conducted by health educators and counselors were significantly less likely to engage in HIV transmission risk behaviors.[9] Although the RWHAP has extensive data on clients and funded facilities, little is known about how patient characteristics, service needs, access to services, and clinical outcomes compare across RWHAP-funded and non–RWHAP-funded facilities.

Implementation of the Patient Protection and Affordable Care Act[10] is expected to expand health care coverage for HIV-infected persons. Increased access to Medicaid and private insurance will provide coverage for medical care but might not provide coverage for support services needed to ensure that patients are able to remain in care and adhere to ART; therefore, it is likely that the RWHAP will continue to play a key role in providing these crucial services.[11] In this changing health care coverage environment, a better understanding of the differences in patient needs and services delivered at RWHAP-funded and non–RWHAP-funded facilities may help inform policy discussions.

We used data from a national probability sample of US outpatient HIV health care facilities and patients receiving care at those facilities in 2009 and 2011 to compare the characteristics of RWHAP-funded vs non–RWHAP-funded facilities, including (1) types of support services provided, (2) sociodemographic and clinical characteristics of patients, and (3) likelihood of receipt or unmet need for specific support services. We also compared the prevalence of ART prescription and viral suppression among patients at RWHAP-funded vs non–RWHAP-funded facilities and assessed whether patients with risk factors for poor outcomes (eg, poverty) were more likely to attain improved outcomes in RWHAP-funded vs non–RWHAP-funded facilities.

Methods

Design

The Medical Monitoring Project (MMP) is an ongoing, complex-sample, cross-sectional survey designed to produce nationally representative estimates of behavioral and clinical characteristics of HIV-infected adults receiving medical care in the United States.[12,13] As a public health surveillance activity, MMP was determined to be nonresearch in accordance with the federal human subjects protection regulations at 45 Code of Federal Regulations 46.101c and 46.102d and in the Centers for Disease Control and Prevention Guidelines for Defining Public Health Research and Public Health Non-Research.[14,15] Participating states or territories and facilities obtained local institutional review board approval to conduct MMP, if required locally. All interviewed patients provided informed consent, written or oral depending on the local health department requirement. Patients received tokens of appreciation with cash value.

For each data collection cycle, US states and territories were sampled first, followed by facilities providing HIV care, and finally adults receiving at least 1 medical care visit in participating facilities between January 1 and April 30 of the cycle year. All sampled states

and territories participated in the MMP (California, Delaware, Florida, Georgia, Illinois, Indiana, Michigan, Mississippi, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Puerto Rico, Texas, Virginia, and Washington).

Within sampled states and territories, outpatient health care facilities providing HIV medical care were sampled with probability proportional to size according to the number of persons receiving care for HIV infection. All eligible facilities, defined as those in which providers routinely order monitoring $CD4^+$ T-lymphocyte cell count or HIV viral load tests and/or prescribe antiretroviral medications, were identified using data from state or local HIV case surveillance systems, laboratory testing databases, and other data sources. To ensure that patients receiving care at facilities that provided therapy for few HIV patients were represented in the patient sample, facilities with low HIV patient volume were linked to larger facilities on the facility sampling frame to create linked facility groups with minimum patient volumes of 40 to 80, with the threshold varying across project areas. If sampled, all participating facilities from the facility group provided separate patient lists for patient sampling. The probability of patient selection was then equalized in the patient sampling phase and thus resulted in greater representation of facilities with low patient volume in the sample than would otherwise occur. Samples of 603 and 570 eligible facilities were selected in 2009 and 2011, respectively.

The MMP project area staff collected all facility information via interviews with staff and other sources, such as facility webpages, between June 1, 2009, and May 31, 2012. Data included facility descriptors (private practice, community health center, hospital affiliated, state or local health department, other community-based organization, Veterans Administration, and clinical research) that were not mutually exclusive, number of patients receiving medical care for HIV infection, facility ownership (public or private), medical and support services provided, and funding sources within the past year, including RWHAP funding. The MMP project area staff identified whether facilities received funding from any RWHAP source, including parts A, B, C, or D.[1] If any RWHAP funding was received, a facility was considered to be RWHAP-funded. Of the 603 eligible facilities in 2009 and 570 eligible facilities in 2011, RWHAP funding status was ascertained for 509 (84.4%) and 480 (84.2%), respectively; a total of 989 facilities were included in this analysis.

Of 603 sampled facilities in 2009 and 570 in 2011, 461 and 473 participated in the patient sampling stage of MMP (facility response rate, 76.5% and 83.0%, respectively). Of 9338 sampled patients at participating facilities in 2009, 4217 had an interview and medical record abstraction completed (adjusted patient response rate, 50.7%); of these, 3844 (91.2%) received care at facilities for which RWHAP funding status was ascertained. Of 9331 sampled patients at participating facilities in 2011,4503 individuals had an interview and medical record abstraction completed (adjusted patient response rate 48.8%); of whom 4194 (93.1%) received care at facilities for which RWHAP funding status was ascertained.

Patient data were collected via face-to-face interviews and medical record abstractions for 8038 individuals between June 1, 2009, and May 31, 2012. Patient information included sociodemographic characteristics (age, sex, sexual transmission risk category, race/ethnicity, country of birth, educational attainment, income relative to federal poverty level,[16] health

care coverage, homelessness, and incarceration), substance use behaviors (noninjection and injection drug use in the past 12 months, binge alcohol use in the past 30 days), clinical factors (time since HIV diagnosis, disease stage, depression, ART prescription, and HIV viral suppression), and receipt of and unmet need for medical and support services. Sexual transmission risk categories were men who have sex with men whether or not they have sex with women, men who have sex with women only, women who have sex with men whether or not they have sex with women, and other. Participants who reported no anal, vaginal, or oral sex in the past 12 months were categorized according to self-reported sexual orientation. *Prescription of ART* was defined as documentation in the medical record of ART prescription in the past 12 months, and *viral suppression* was defined as documentation in the medical record of the most recent viral load being undetectable or less than 200 copies/mL.

Statistical Analysis

Facility data were weighted based on known probabilities of selection and adjusted for nonresponse using predictors of facility-level response including facility size and university affiliation. Patient data were weighted based on known probabilities of selection and weighted to adjust for nonresponse using predictors of patient-level response including race/ethnicity, time since HIV diagnosis, age group, and facility size. The sample design and weighting methods allow inference to all outpatient HIV health care facilities and HIV-infected persons receiving outpatient medical care in the United States between January and April in 2009 and 2011.

We estimated proportions of facility and patient characteristics with weighted percentages and their corresponding 95% CIs and estimated statistical differences between proportions with modified Rao-Scott χ^2 tests. We evaluated potential statistical unreliability of prevalence estimates with the criterion of a relative SE greater than 30%. To examine associations between RWHAP funding status and ART prescription and viral suppression among patients, we used multivariable logistic regression with predicted marginal means to calculate prevalence ratios (PRs) and 95% CIs. We adjusted associations between RWHAP funding status and the outcomes of interest (ART prescription or viral suppression) for potential confounding by including variables significantly associated with the outcomes at the $P < .05$ level in the final multivariable models. In addition, we assessed the interaction between attending a RWHAP-funded facility and all sociodemographic and clinical factors associated with the outcomes to assess whether persons with risk factors for poor outcomes (eg, poverty) had similar levels of ART prescription and viral suppression in RWHAP-funded and non–RWHAP-funded facilities. Interaction terms significant at the $P < .05$ level were included in the final multivariable models.

All analyses accounted for the complex sample design and unequal selection probabilities. Analyses were completed using SAS, version 9.3 (SAS Institute Inc), and SAS-callable SUDAAN, version 10.0.1 (RTI International).

Results

We estimate that 34.4% of facilities providing outpatient HIV care to adults in the United States received RWHAP funding (Table 1). Compared with non–RWHAP-funded facilities, significantly larger proportions of RWHAP-funded facilities cared for more than 400 HIV-infected patients and were community health centers, state or local health departments, and other community-based organizations; larger proportions of non–RWHAP-funded facilities cared for less than50 HIV-infected patients and were private practices and Veterans Administration facilities. The RWHAP-funded facilities were significantly more likely to provide each RWHAP-funded service assessed (Table 2 and eFigure 1 in the Supplement). The RWHAP-funded facilities were also significantly more likely to provide general and high-risk prenatal care and on-site pharmacy services, which are not funded by the RWHAP. Alternative therapies were provided at a similar low prevalence regardless of RWHAP funding.

We estimate that 72.8% of US HIV-infected adults who received medical care attended a RWHAP-funded facility (Table 3). Persons receiving care at those facilities were more likely to be younger, female, black or Hispanic, and born outside the United States. Moreover, patients at RWHAP-funded facilities were more likely to have less than a high school education, have an income at or below the federal poverty level, have no health care coverage, and have been homeless or incarcerated. There were no significant differences in injection drug use or binge alcohol use, but patients at non–RWHAP-funded facilities were more likely to use any noninjection drugs. Diagnoses were established more recently in patients attending RWHAP-funded facilities, and these individuals were more likely to have major or other depression. There was no significant difference in ART prescription, but patients at RWHAP-funded facilities were less likely to be virally suppressed. Patients who received care at RWHAP-funded facilities were significantly more likely to receive all services except dental care (Table 4 and eFigure 2 in the Supplement). Patients at RWHAP-funded facilities were significantly more likely to report unmet needs for dental care and assistance with housing, transportation, and food.

In multivariable analysis reported as adjusted PR (Table 5), persons less likely to be prescribed ART were aged 18 to 29 and 30 to 39 years compared with those 50 years or older (0.85 and 0.94, respectively), were non-Hispanic blacks and persons of other race compared with whites (0.97 and 0.94, respectively), and were homeless within the past 12 months (0.97). Those with less than a high school education were more likely to be prescribed ART (1.03). Antiretroviral prescriptions did not differ significantly whether patients received care at a facility that received or did not receive RWHAP funding (1.01). Females (0.96), non-Hispanic blacks, and persons of other races compared with whites (0.89 and 0.93, respectively) and those who were homeless (0.89), incarcerated (0.87), or had major depression or other depression (0.92 and 0.95, respectively) were less likely to be virally suppressed. There were no interactions between attending a RWHAP-funded facility and age, sex, race/ethnicity, educational attainment, poverty, homelessness, incarceration, or depression that were associated with ART prescription. However, persons at or below the poverty level and those aged 30 to 39 years who received care at a RWHAP-funded facility compared with those who received care at a non–RWHAP-funded facility (1.09 and 1.17,

respectively) were more likely to achieve viral suppression. No interactions between attending a RWHAP-funded facility and the other sociodemographic and clinical factors assessed were associated with viral suppression.

Discussion

Outpatient HIV health care facilities funded by the RWHAP provide key medical and support services to approximately 75% of HIV-infected adults receiving medical care in the United States. Patients receiving care at RWHAP-funded facilities were less likely to have resources to support health (eg, were more likely to be less educated, poor, uninsured, homeless, and incarcerated), which are factors consistently associated with poor clinical outcomes.[17] Many patients receiving care at RWHAP-funded facilities used support services to secure basic life necessities, with approximately 1 in 3 patients receiving assistance with food and transportation and nearly 1 in 5 receiving help obtaining housing.

The RWHAP funds core medical services and support services intended to improve health outcomes for low-income, uninsured, and underinsured HIV-infected persons. Facilities receiving RWHAP funding were more likely to provide a wide range of on-site support services designed to retain patients in care, support ART adherence, and reduce HIV transmission risk behaviors; patients at RWHAP-funded facilities were significantly more likely to use these services. Despite the greater likelihood of poverty, unstable housing, and lack of health care coverage, nearly 75% of patients receiving care at RWHAP-funded facilities achieved viral suppression. Although we noted differences in ART prescriptions among certain subgroups (eg, age group, race/ethnicity), these was a similar percentage of ART prescribing for patients attending RWHAP-funded facilities compared with patients attending non–RWHAP-funded facilities. Overall, patients attending RWHAP-funded facilities were less likely to achieve viral suppression than were patients attending non–RWHAP-funded facilities (74.4% vs 79.0%). However, in an analysis adjusting for patient characteristics and assessing whether patients with risk factors for poor outcomes (eg, poverty) were more likely to attain improved outcomes in RWHAP-funded vs non–RWHAP-funded facilities, we identified 2 subgroups (persons with incomes at or below the poverty level and persons aged 30 to 39 years) who were significantly more likely to achieve viral suppression in RWHAP-funded facilities compared with non–RWHAP-funded facilities. This finding supports the premise that RWHAP-funded facilities, which provide substantial support services for marginalized persons (eg, those living at or below the poverty level), provide better care for poor persons compared with non–RWHAP-funded facilities. Improved outcomes among persons aged 30 to 39 years attending RWHAP-funded facilities compared with those attending non–RWHAP-funded facilities should be explored further. Potentially, a substantial percentage of persons aged 30 to 39 years might be uninsured, underinsured, and not receiving disability benefits and may benefit preferentially from medical and support services provided by the RWHAP, leading to improved retention in care and adherence to treatment. Because we had no a priori hypotheses that attendance at RWHAP-funded facilities would be more important for one group than another, our subgroup findings should be interpreted cautiously and could be spurious.

Several characteristics of facilities receiving RWHAP funding may optimize HIV-infected patient outcomes. A total of 45.4% of RWHAP-funded facilities were community health centers and 78.3% of non–RWHAP-funded facilities were private practices. An analysis[18] of National Ambulatory Medical Care Survey data concluded that federally qualified health centers performed as well as or better than private practices on select quality measures. In addition, population-based studies[19] have demonstrated that patients at RWHAP-funded facilities received preventive care of equal or better quality than patients at non–RWHAP-funded facilities. Moreover, facilities receiving RWHAP funding provide care for larger numbers of HIV-infected patients than non–RWHAP-funded facilities, which has been associated with better clinical outcomes.[20] Finally, the RWHAP model of multidisciplinary care has been described[21] as an exemplar of the team approach component of the patient-centered medical home, which is a model for improving how primary care is organized and delivered.

Approximately 75% of RWHAP-funded facilities provide on-site case management, which facilitates assistance with food, housing, and transportation. Without RWHAP-funded facilities, many patients may have limited access to comprehensive on-site support services elsewhere, since only 15.4% of non–RWHAP-funded facilities provided case management. Mental health and substance abuse disorders are common in the HIV-infected population[22–24] and are critical barriers to retention in care and adherence to treatment.[25] Patients receiving care at RWHAP-funded facilities were more likely to have access to on-site mental health and substance abuse services and receive necessary treatment. Patients at non–RWHAP-funded facilities needing these services may be more likely to require referral for treatment at outside facilities that may be difficult to access, particularly for those with Medicaid or no insurance.[26] Adherence to ART is essential for viral suppression and prevention of the emergence of drug resistance mutations.[27,28] Consultations or programs specifically designed to support patient adherence to HIV treatment were available at 4 of 5 RWHAP-funded facilities, and patients receiving care at those facilities were twice as likely to receive such services as were patients at non–RWHAP-funded facilities. Without the support available at RWHAP-funded facilities, many patients may need to be referred to and be willing and able to visit outside facilities for these services.

A variety of evidence-based interventions provided by health educators or counselors in the health care setting have resulted in reductions in transmission risk behaviors among patients.[9] The RWHAP-funded facilities were more likely to provide risk reduction counseling sessions by a counselor specifically trained to perform these services and, although differences in risk behaviors were not measured, patients receiving care at these facilities were more likely to report receiving prevention counseling.

Expansion of health care coverage through implementation of the Patient Protection and Affordable Care Act might not fully supplant the need for RWHAP funding to provide essential support services, since many of these services are not typically covered by Medicaid or private health insurance.[11] As the payer of last resort, the RWHAP will fill gaps in medical coverage for patients who are newly covered by Medicaid or private insurance. Persons receiving care as a result of coverage through the Patient Protection and Affordable Care Act and in need of support services not covered by Medicaid or private insurance may

be more likely to receive those services if they obtain medical care at RWHAP-funded facilities.

Our study was subject to several limitations. First, RWHAP funding status was not ascertained for 16% of health care facilities in 2009 or 2011 that were attended by 9% of patients in 2009 and 7% of patients in 2011. These facilities and patients were therefore excluded from analysis. To assess whether our results were biased by these exclusions, we compared facilities and patients with missing data with those without missing data and found few significant differences and no significant differences in service provision, receipt of services, patient demographics, or viral suppression. Second, not all patients attending RWHAP-funded facilities received RWHAP-funded services so our findings should not be interpreted as a comparison of patients receiving vs not receiving RWHAP-funded services. Finally, although surveys were completed for all eligible sampled facilities, our patient response rate was lower than optimal. However, even with low response there is considerable value in unbiased sampling from rigorously constructed frames.[29] We assessed and adjusted for nonresponse using widely accepted statistical techniques, although we acknowledge the possibility of residual nonresponse bias. To the extent that persons less engaged in care may be less likely to participate in MMP, our findings with regard to levels of viral suppression may be affected. However, we have no reason to believe that this bias may be different in RWHAP-funded vs non–RWHAP-funded facilities (ie, persons less engaged in care maybe less likely to participate regardless of the type of facility), so our findings with regard to the comparison of viral load and facility type are unlikely to be affected.

Conclusions

During the present study, 72.8% of HIV-infected patients in the United States received care at facilities supported by the RWHAP. These facilities serve patients with multiple social determinants of poor health who heavily use on-site services known to be associated with improved outcomes. Without health care facilities supported by the RWHAP, these patients may have reduced access to support services elsewhere. Despite the challenges they face, 74.4% of patients at RWHAP-funded facilities achieved viral suppression. After adjusting for differences in patient characteristics, patients living in poverty and those aged 30 to 39 years were more likely to achieve viral suppression if they received care at a RWHAP-funded facility. The Patient Protection and Affordable Care Act is expected to expand health care coverage for HIV-infected persons. Increased access to Medicaid and private insurance will provide coverage for medical care but might not provide coverage for all essential support services. Therefore, the RWHAP will likely continue to play a role in funding vital services key to successful outcomes.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Characteristics of Outpatient HIV Health Care Facilities by Ryan White HIV/AIDS Program Funding Status[a]

Characteristic	Facilities, No. (%) [95% CI][b] All (N = 989)	RWHAP Funded (n = 466)	Non-RWHAP Funded (n = 523)	*P* Value
Total		466 (34.4) [28.6–40.1]	523 (65.6) [59.9–71.4]	
Facility size (No. of HIV-infected patients)				
Small (<50)	320 (51.8) [47.2–56.3]	71 (30.5) [21.4–39.7]	249 (62.9) [58.4–67.3]	<.001
Medium (50–400)	377 (38.5) [34.7–42.2]	177 (48.0) [40.8–55.2]	200 (33.5) [29.3–37.7]	
Large (>400)	292 (9.8) [7.7–11.8]	218 (21.5) [16.6–26.3]	74 (3.6) [2.5–4.7]	
Facility description[c]				
Private practice	471 (57.8) [52.5–63.0]	69 (18.6) [12.5–24.8]	402 (78.3) [72.1–84.4]	<.001
Community health center	210 (19.0) [14.8–23.3]	183 (45.4) [38.2–52.6]	27 (5.2) [2.9–7.6]	<.001
Hospital affiliated	342 (27.3) [24.2–30.4]	197 (32.8) [25.1–40.6]	145 (24.4) [19.5–29.3]	.13
State or local health department	83 (6.1) [4.1–8.0]	79 (16.4) [11.5–21.3]	4 (0.6) [0.0–1.3]	<.001
Other community-based organization	73 (5.0) [3.4–6.6]	70 (13.2) [9.1–17.3]	3 (0.7) [0.0–1.7]	<.001
Veterans Administration	17 (3.0) [1.4–4.5]	1 (0.1) [0.0–0.3]	16 (4.4) [2.3–6.6]	<.001
Clinical research	184 (9.5) [7.4–11.5]	122 (14.5) [9.8–19.1]	62 (6.8) [4.6–9.0]	.005
Ownership				
Public	194 (15.3) [12.8–17.7]	141 (28.3) [22.8–33.8]	53 (8.5) [5.7–11.3]	<.001
Private	765 (84.7) [82.3–87.2]	305 (71.7) [66.2–77.2]	460 (91.5) [88.7–94.3]	

Abbreviations: HIV, human immunodeficiency virus; RWHAP, Ryan White HIV/AIDS Program.

[a] Source of the data was the Medical Monitoring Project, 2009 and 2011.[12,13]

[b] Data presented as number (percentage) are sample size (weighted percentage). Data were weighted based on known probabilities of selection and adjusted for nonresponse using predictors of facility-level response. The sample design and weighting methods allow inference to all outpatient HIV health care facilities in the United States providing care for patients in the first 4 months of each cycle year (2009–2011).

[c] Total of percentages is greater than 100 because categories are not mutually exclusive (ie, facilities could indicate more than 1 descriptor). Facilities were not required to have a federally qualified health center designation to indicate that they were a community health center.

Table 2

Supplemental Services Provided by Outpatient HIV Health Care Facilities in the United States by Ryan White HIV/AIDS Program Funding Status[a]

Characteristic	Facilities, No. (%) [95% CI][b] All (N = 989)	RWHAP Funded (n = 466)	Non-RWHAP Funded (n = 523)	*P* Value
RWHAP-Funded Services				
Mental health services	438 (33.8) [29.4–38.2]	335 (64.0) [57.0–71.0]	103 (18.0) [14.0–21.9]	<.001
Substance abuse services	251 (19.4) [15.9–22.9]	187 (33.6) [27.0–40.2]	64 (12.0) [8.0–16.0]	<.001
Dental care	259 (22.6) [17.6–27.6]	211 (48.5) [39.9–57.1]	48 (9.1) [5.7–12.4]	<.001
Case management	482 (36.3) [31.6–41.0]	383 (76.1) [69.9–82.2]	99 (15.4) [10.4–20.4]	<.001
Adherence counseling[c]	608 (47.9) [42.4–53.5]	406 (81.5) [75.6–87.4]	202 (30.3) [24.4–36.2]	<.001
Interpreter services	451 (39.4) [35.3–43.4]	299 (59.2) [52.2–66.3]	152 (28.9) [22.5–35.4]	<.001
Transportation assistance	333 (25.6) [21.9–29.3]	275 (53.4) [45.8–60.9]	58 (11.0) [6.6–15.4]	<.001
Nutritionist/dietician	443 (35.1) [30.0–40.2]	322 (60.4) [52.1–68.7]	121 (21.8) [16.2–27.4]	<.001
Social services	401 (28.6) [24.7–32.5]	310 (57.4) [51.1–63.8]	91 (13.5) [10.0–17.0]	<.001
Risk reduction counseling[d]	499 (38.9) [33.4–44.4]	366 (71.4) [65.2–77.5]	133 (22.0) [14.9–29.0]	<.001
Non-RWHAP-Funded Services				
On-site prenatal care				
General	316 (30.5) [23.2–37.9]	206 (42.4) [34.4–50.4]	110 (24.3) [14.8–33.8]	.001
High risk	189 (13.2) [10.4–16.0]	135 (19.5) [14.8–24.1]	54 (9.9) [6.1–13.7]	.002
On-site pharmacy	396 (31.2) [26.0–36.4]	255 (45.5) [38.5–52.5]	141 (23.7) [17.3–30.2]	<.001
Alternative therapies	63 (6.4) [3.8–8.9]	34 (6.9) [3.3–10.5]	29 (6.1) [3.4–8.8]	.64

Abbreviation: HIV, human immunodeficiency virus; RWHAP, Ryan White HIV/AIDS Program.

[a] Source of the data was the Medical Monitoring Project, 2009 and 2011.[12,13]

[b] Data presented as number (percentage) are sample size (weighted percentage). Data were weighted based on known probabilities of selection and adjusted for nonresponse using predictors of facility-level response. The sample design and weighting methods allow inference to all outpatient HIV health care facilities in the United States providing care for patients in the first 4 months of each cycle year (2009–2011).

[c] Consultations or programs specifically designed to improve patient adherence to HIV treatment.

[d] Sessions conducted by a counselor trained to conduct this type of counseling.

Table 3

Characteristics of Patients by Ryan White HIV/AIDS Program Funding Status of Outpatient HIV Health Care Facility[a]

Characteristic	Patients, No. (%) [95% CI][b]			P Value
	All (N = 8038)	RWHAP Funded (n = 6013)	Non-RWHAP Funded (n = 2025)	
Total		6013 (72.8) [67.7–77.9]	2025 (27.2) [22.1–32.3]	
Age, y				
18–29	596 (7.5) [6.7–8.4]	503 (8.5) [7.4–9.5]	93 (5.0) [3.9–6.2]	<.001
30–39	1293 (16.7) [15.5–17.9]	1026 (17.9) [16.5–19.3]	267 (13.6) [12.0–15.2]	
40–49	2940 (36.0) [34.6–37.3]	2180 (35.3) [33.7–37.0]	760 (37.8) [35.5–40.1]	
≥50	3209 (39.8) [38.5–41.1]	2304 (38.3) [36.7–40.0]	905 (43.6) [40.6–46.6]	
Sex				
Male	5764 (71.7) [69.7–73.8]	4130 (69.0) [67.0–71.0]	1634 (79.0) [75.9–82.2]	<.001
Female	2152 (26.7) [24.7–28.7]	1782 (29.2) [27.2–31.2]	370 (20.1) [17.0–23.1]	
Transgender	120 (1.5) [1.2–1.9]	99 (1.8) [1.4–2.2]	21 (0.9) [0.5–1.3]	
Sexual transmission risk category[c]				
Any MSM	3733 (47.4) [44.0–50.9]	2389 (41.0) [37.5–44.6]	1344 (64.6) [60.3–68.8]	<.001
MSW only	1980 (23.6) [21.6–25.6]	1703 (27.2) [25.0–29.5]	277 (13.8) [11.8–15.8]	
Any WSM	2100 (26.0) [24.1–27.9]	1736 (28.4) [26.5–30.2]	364 (19.7) [16.7–22.8]	
Other	225 (2.9) [2.4–3.4]	185 (3.3) [2.7–4.0]	40 (1.9) [1.2–2.5]	
Race/ethnicity				
White, non-Hispanic	2560 (33.5) [29.4–37.7]	1387 (25.3) [22.2–28.4]	1173 (55.6) [49.6–61.5]	<.001
Black, non-Hispanic	3316 (41.6) [35.9–47.2]	2831 (47.5) [41.5–53.5]	485 (25.8) [20.6–31.0]	
Hispanic or Latino	1775 (19.9) [15.5–24.2]	1521 (22.5) [16.4–28.6]	254 (12.9) [10.6–15.2]	
Other[d]	387 (5.0) [4.2–5.8]	274 (4.8) [3.8–5.7]	113 (5.8) [4.7–6.8]	
Born outside the United States	1033 (13.3) [11.6–14.9]	851 (14.7) [12.4–17.0]	182 (9.5) [7.9–11.1]	.001
Educational attainment				
<High school	1824 (22.0) [20.1–23.9]	1615 (26.1) [24.0–28.3]	209 (10.9) [8.7–13.1]	<.001
High school diploma or equivalent	2206 (27.2) [25.4–29.0]	1798 (29.5) [27.6–31.4]	408 (21.1) [18.2–24.1]	
>High school	4007 (50.8) [47.8–53.7]	2599 (44.4) [41.7–47.0]	1408 (68.0) [63.5–72.4]	
At or below poverty level[e,f]	3665 (45.4) [42.3–48.5]	3212 (53.6) [50.3–56.9]	453 (23.9) [19.7–28.0]	<.001
Health insurance coverage during the past 12 mo[e,g]				
Continuous	5768 (70.8) [67.9–73.8]	4014 (65.0) [61.8–68.1]	1754 (86.5) [84.1–88.9]	<.001
Lapsed	767 (9.3) [8.4–10.3]	620 (10.0) [8.8–11.2]	147 (7.4) [5.8–9.0]	
None	1480 (19.8) [16.9–22.8]	1358 (25.0) [21.9–28.1]	122 (6.1) [4.1–8.0]	
Past 12-mo status[e]				
Homeless	716 (8.5) [7.6–9.4]	626 (9.9) [8.7–11.1]	90 (4.8) [3.7–5.9]	<.001

Characteristic	Patients, No. (%) [95% CI][b] All (N = 8038)	RWHAP Funded (n = 6013)	Non-RWHAP Funded (n = 2025)	*P* Value
Incarcerated	428 (5.4) [4.7–6.0]	375 (6.4) [5.6–7.2]	53 (2.7) [1.6–3.8]	<.001
Noninjection drug use	2117 (26.7) [25.1–28.2]	1518 (25.6) [23.9–27.3]	599 (29.6) [27.3–31.9]	.003
Injection drug use	215 (2.5) [1.8–3.2]	172 (2.6) [1.8–3.3]	43 (2.2) [1.3–3.2]	.47
Binge alcohol use in the past 30 d	1325 (16.3) [15.4–17.3]	984 (16.1) [14.9–17.3]	341 (16.9) [15.1–18.7]	.47
Time since HIV diagnosis, y				
<5	1738 (22.7) [21.5–24.0]	1392 (24.3) [22.7–25.9]	346 (18.6) [16.6–20.6]	<.001
5–9	1772 (21.8) [20.9–22.8]	1350 (22.0) [20.9–23.2]	422 (21.2) [19.2–23.2]	
≥10	4521 (55.4) [54.0–56.9]	4240 (53.7) [51.8–55.5]	1252 (60.2) [57.6–62.9]	
Disease stage[h]				
AIDS or nadir CD4+ 0–199 cells/μL or CD4+ <14%	5555 (68.5) [67.0–70.0]	4240 (69.7) [68.0–71.4]	1315 (65.2) [62.8–67.5]	<.001
No AIDS and nadir CD4+ 200 to 499 cells/μL or CD4+ 14% to <29%	1931 (24.9) [23.6–26.3]	1401 (24.2) [22.7–25.7]	530 (26.8) [24.5–29.1]	
No AIDS and nadir CD4+ ≥500 cells/μL or CD4+ ≥29%	516 (6.6) [5.9–7.3]	350 (6.1) [5.3–6.8]	166 (8.0) [6.9–9.2]	
Depression in the past 2 wk				
Major	873 (11.1) [9.9–12.3]	669 (11.3) [10.0–12.6]	204 (10.5) [8.3–12.8]	.007
Other	964 (12.7) [11.6–13.7]	769 (13.6) [12.3–14.8]	195 (10.3) [8.7–11.9]	
Prescribed ART in the past 12 mo[e,i]	7269 (90.6) [89.5–91.7]	5423 (90.4) [89.1–91.7]	1846 (91.0) [89.4–92.6]	.53
Viral suppression[j]	3165 (75.5) [73.4–77.6]	2397 (74.4) [72.0–76.8]	768 (79.0) [75.9–82.2]	.02

Abbreviations: ART, antiretroviral therapy; HIV, human immunodeficiency virus; MSM, men who have sex with men whether or not they also reported sex with women; MSW, men who have sex with women only; RWHAP, Ryan White HIV/AIDS Program; WSM, women who have sex with men whether or not they also reported sex with women.

[a] Source of the data was the Medical Monitoring Project, 2009 and 2011.[12,13]

[b] Data presented No. (%) are sample size (weighted percentage). Facility and patient data were weighted based on known probabilities of selection and adjusted for nonresponse using predictors of facility-level and patient-level response. The sample design and weighting methods allow inference to all outpatient HIV health care facilities providing care and HIV-infected persons receiving care in the United States during the first 4 months of the cycle year (2009 and 2011).

[c] Participants who reported no anal, vaginal, or oral sex in the past 12 months were categorized according to self-reported sexual orientation.

[d] Includes Asian, American Indian, Alaska native, Native Hawaiian, Other Pacific Islander, and multiracial groups.

[e] During the 1-year period preceding the interview (2009 data were collected in interviews conducted between June 2009 and May 2010; 2011 data were collected in interviews conducted between June 2011 and May 2012).

[f] Determined using the US Department of Health and Human Services poverty guidelines.[16]

[g] Having health insurance or coverage does not include having only RWHAP assistance.

[h] AIDS was defined as confirmed HIV infection with either: a CD4+ T-lymphocyte cell count less than 200 cells/μL, a CD4+ T-lymphocyte cell percentage of total lymphocytes less than 14%, or a diagnosis of a stage 3–defining opportunistic illness.

[i] Documentation in the medical record of prescription of antiretroviral therapy.

[j] Documentation in the medical record of the most recent viral load being undetectable or less than 200 copies/mL.

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Table 4

Support Services Received and Unmet Need for Services Among Patients Attending Outpatient HIV Health Care Facilities by Ryan White HIV/AIDS Program Funding Status[a]

Characteristic	Service Received, No. (%) [95% CI][b]			Unmet Need for Service, No. (%) [95% CI][b]		
	RWHA-Funded Facilities (N = 6013)	Non-RWHAP-Funded Facilities (n = 2025)	*P* Value	RWHAP-Funded Facilities (n = 6013)	Non-RWHAP-Funded Facilities (n = 2025)	*P* Value
Comprehensive health services						
Mental health	1781 (29.3) [27.1–31.4]	478 (23.3) [20.9–25.7]	<.001	356 (6.1) [5.4–6.8]	136 (6.8) [5.4–8.2]	.34
Substance abuse	665 (10.3) [8.7–12.0]	136 (6.6) (5.4–7.9]	<.001	110 (2.1) [1.6–2.5]	30 (1.3) [0.8–1.9]	.06
Dental care	3400 (56.4) [54.2–58.6]	1293 (63.2) (58.9–67.5]	.002	1439 (24.5) [22.5–26.5]	400 (19.9) [16.1–23.6]	.009
Other supportive services						
Case management	4029 (66.5) [63.4–69.7]	786 (39.5) [32.7–46.3]	<.001	299 (4.9) [4.3–5.6]	108 (5.7) [4.5–7.0]	.23
Adherence counseling[c]	1409 (23.0) [21.0–25.0]	211 (10.3) [8.3–12.4]	<.001	118 (1.9) [1.4–2.3]	51 (2.4) [1.7–3.1]	.15
Interpreter services	226 (3.8) [2.8–4.8]	19 (1.0) [0.5–1.5]	<.001	29 (0.4) [0.2–0.6]	3 (0.1) [0.0–0.3]	.02
Transportation assistance	1772 (28.7) [26.6–30.7]	311 (15.9) [12.4–19.4]	<.001	596 (10.0) [8.6–11.3]	125 (6.0) [4.5–7.5]	<.001
Meal/food services	1997 (31.9) [29.6–34.1]	432 (21.1) [17.2–25.0]	<.001	491 (8.4) [7.1–9.8]	85 (4.1) [3.1–5.1]	<.001
Shelter or housing	1099 (17.8) [16.0–19.5]	207 (10.2) [8.0–12.4]	<.001	529 (8.9) [7.9–9.8]	106 (5.2) [4.3–6.2]	<.001
Prevention services						
Risk reduction counseling[d]	2879 (47.4) [44.8–50.1]	502 (25.0) [20.6–29.5]	<.001	74 (1.2) [0.9–1.6]	16 (0.8) [0.4–1.3]	.16

Abbreviations: HIV, human immunodeficiency virus; RWHAP, Ryan White HIV/AIDS Program.

[a] Source of the data was the Medical Monitoring Project, 2009 and 2011.[12,13]

[b] Percentages for services received refer to the percent of all patients receiving care at RWHAP-funded or non–RWHAP-funded facilities who reported receiving a service. Percentages for unmet need for services refer to the percent of patients not receiving a service who report a need for that service. Data presented as No. (%) are sample size (weighted percentage). Facility and patient data were weighted based on known probabilities of selection and adjusted for nonresponse using predictors of facility-level and patient-level response. The sample design and weighting methods allow inference to all outpatient HIV health care facilities providing care and HIV-infected persons receiving care in the United States during the first 4 months of the cycle year (2009 and 2011).

[c] Consultations or programs specifically designed to improve patient adherence to HIV treatment.

[d] Sessions provided by a counselor trained specifically to conduct this type of counseling.

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Table 5

Association Between Attending Ryan White HIV/AIDS Program Funded Facility, ART Prescription, and Viral Suppression[a]

	ART Prescription[b,c]			Viral Suppression[d]		
Characteristic	**% (95% CI)**	**APR (95% CI)**	***P* Value**	**% (95% CI)**	**APR (95% CI)**	***P* Value**
Age, y						
18–29	0.79 (0.74–0.84)	0.85 (0.80–0.90)	<.001	NA	NA	NA
30–39	0.88 (0.85–0.90)	0.94 (0.92–0.97)	<.001	NA	NA	NA
40–49	0.92 (0.91–0.93)	0.99 (0.97–1.01)	.23	NA	NA	NA
≥50	0.93 (0.91–0.94)	1 [Reference]	NA	NA	NA	NA
Sex						
Male	0.91 (0.90–0.92)	1 [Reference]	NA	0.74 (0.73–0.76)	1 [Reference]	NA
Female	0.90 (0.88–0.91)	0.99 (0.97–1.01)	.18	0.72 (0.69–0.74)	0.96 (0.93–1.00)	.03
Race/ethnicity						
Non-Hispanic, black	0.89 (0.88–0.91)	0.97 (0.95–0.99)	<.001	0.70 (0.67–0.72)	0.89 (0.86–0.93)	<.001
Hispanic or Latino	0.91 (0.89–0.93)	0.99 (0.96–1.01)	.37	0.76 (0.73–0.79)	0.98 (0.93–1.02)	.27
Non-Hispanic, white	0.92 (0.91–0.94)	1 [Reference]	NA	0.78 (0.76–0.80)	1 [Reference]	NA
Other[e]	0.87 (0.82–0.91)	0.94 (0.90–0.99)	.02	0.72 (0.67–0.77)	0.93 (0.86–1.00)	.04
Educational level						
<High school	0.93 (0.91–0.94)	1.03 (1.01–1.05)	.003	0.72 (0.69–0.75)	0.97 (0.93–1.02)	.20
High school diploma or equivalent	0.91 (0.89–0.92)	1.01 (0.99–1.03)	.33	0.74 (0.71–0.76)	0.99 (0.95–1.03)	.60
>High school	0.90 (0.88–0.91)	1 [Reference]	NA	0.74 (0.72–0.77)	1 [Reference]	NA
Poverty[c,f]						

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Characteristic	ART Prescription[b,c]			Viral Suppression[d]		
	% (95% CI)	APR (95% CI)	*P* Value	% (95% CI)	APR (95% CI)	*P* Value
At or below level	0.90 (0.89–0.92)	1.00 (0.98–1.01)	.63	NA	NA	
Above level	0.91 (0.90–0.92)	1 [Reference]	NA	NA	NA	
Homeless in the past 12 mo[c]						
Yes	0.88 (0.85–0.91)	0.97 (0.94–1.00)	.05	0.66 (0.62–0.70)	0.89 (0.83–0.95)	<.001
No	0.91 (0.90–0.92)	1 [Reference]	NA	0.74 (0.73–0.76)	1 [Reference]	NA
Incarcerated in the past 12 mo[c]						
Yes	0.89 (0.86–0.91)	0.98 (0.95–1.01)	.26	0.65 (0.60–0.70)	0.87 (0.81–0.94)	<.001
No	0.91 (0.90–0.92)	1 [Reference]	NA	0.74 (0.72–0.76)	1 [Reference]	NA
Depression in the past 2 wk						
Major	0.90 (0.88–0.92)	0.99 (0.97–1.02)	.48	0.69 (0.66–0.73)	0.92 (0.88–0.98)	.003
Other	0.92 (0.89–0.93)	1.01 (0.99–1.04)	.32	0.71 (0.68–0.74)	0.95 (0.91–0.99)	.02
None	0.91 (0.89–0.92)	1 [Reference]	NA	0.75 (0.73–0.77)	1 [Reference]	NA
Attending RWHAP-funded facility						
Yes	0.91 (0.90–0.92)	1.01 (0.99–1.03)	.46	NA	NA	NA
No	0.90 (0.88–0.92)	1 [Reference]	NA	NA	NA	NA
Interaction between poverty and attending RWHAP-funded vs non-RWHAP-funded facility[d]						
At or below poverty level and in RWHAP facility	NA	NA	NA	0.73 (0.70–0.75)	1.09 (1.02–1.16)	.01
At or below poverty level and in non-RWHAP facility	NA	NA	NA	0.67 (0.62–0.71)	1 [Reference]	NA

Characteristic	ART Prescription[b,c]			Viral Suppression[d]		
	% (95% CI)	APR (95% CI)	*P* Value	% (95% CI)	APR (95% CI)	*P* Value
Above poverty level and in RWHAP facility	NA	NA	NA	0.74 (0.72–0.77)	0.96 (0.92–1.01)	.09
Above poverty level and in non-RWHAP facility	NA	NA	NA	0.77 (0.74–0.80)	1 [Reference]	NA
Interaction between age and attending RWHAP-funded vs non-RWHAP-funded facility						
Aged 30–39 y and in RWHAP facility	NA	NA	NA	0.66 (0.61–0.70)	1.17 (1.02–1.35)	.02
Aged 30–39 y and in non-RWHAP facility	NA	NA	NA	0.56 (0.48–0.63)	1 [Reference]	NA
Not aged 30–39 y and in RWHAP facility	NA	NA	NA	0.75 (0.73–0.77)	0.99 (0.95–1.04)	.79
Not aged 30–39 y and in non-RWHAP facility	NA	NA	NA	0.75 (0.72–0.78)	1 [Reference]	NA

Abbreviations: APR, adjusted prevalence ratio based on predicted marginal; ART, antiretroviral therapy; HIV, human immunodeficiency virus; RWHAP, Ryan White HIV/AIDS Program.

[a] Source of the data was the Medical Monitoring Project, 2009 and 2011.[12,13]

[b] Documentation in the medical record of prescription of antiretroviral therapy.

[c] During the 1-year period preceding the interview (2009 data were collected in interviews conducted between June 2009 and May 2010; 2011 data were collected in interviews conducted between June 2011 and May 2012).

[d] Documentation in the medical record of the most recent viral load being undetectable or <200 copies/mL.

[e] Includes Asian, American Indian, Alaska native, Native Hawaiian, Other Pacific Islander, and multiracial groups.

[f] Determined using the US Department of Health and Human Services poverty guidelines.